

## PRESERVATION OF PREPARATIONS FOR THE MICROSCOPE.

One of the greatest obstacles in the study of plants—in cases, at least, where the aid of the microscope is indispensable—is the difficulty of preserving the minute parts and sections which have formed the materials of observation, and which require to be compared again and again, before complete conviction as to the certainty of any particular facts can be obtained. Every one who has attempted to dive into the intimate structure of vegetables, knows how hard it is to make useful sections, and that it is often practically impossible to obtain a second of equal excellence with one which a happy direction of the knife has once achieved. An easy method, therefore, of preserving such preparations would be invaluable. It is true that the plan adopted by Mr. Thwaites and others with such success, is available for a very large class of objects, but there is much difficulty in preparing both the cells and fluid in which they are to be preserved; and after all, not only is the expense considerable, and the necessity of keeping a large quantity of very brittle objects in a separate cabinet, with a very strict system of labelling, if the collection is to be of any real value, an unavoidable waste of much time, but after all, even in the best hands, the varnish is apt, after some months, to get into the cells and destroy the delicate specimens. Besides which, objects so mounted are, in consequence of the thickness of the cells, of no use for the microscopes called doublets.

A very easy and compendious method of preserving all such preparations as readily imbibe water has lately been proposed by C. Müller, which bids fair to be of great value. Slices of the very best and most translucent talc are cut of any convenient size, and made so thin that they will admit of being easily divided with a fine pointed penknife. The lamina is then to be slit to the middle, and the object inserted in the fissure with a little water. It will be found convenient if possible to make the fissure nearer to one surface than the other, and to mark the divided end by cutting off the corners. With a little practice it will be found that the division will always be effected in such a way as to secure the cohesion of the two laminae, and the retention of the object. When the objects are wanted for the microscope it will be necessary merely to dip the marked end of the talc in water, with a pair of pincers; and by means of capillary attraction, the object will at once be properly moistened. A slip of paper neatly gummed upon the undivided end, will at once answer the purpose of a label, and will point out the upper surface of the talc, a matter of some importance where deep doublets are used, supposing the lower division of the plate to be thicker than the upper. It is clear that objects so preserved may be kept between the same sheets as the specimens from which they are taken, and will therefore be immediately accessible without any loss of time. In a collection of Mosses, for instance, and *Jungermannia*, especially where the specimens are small and unique, and where in consequence it is often impossible to examine the peristome more than once, unless the preparation can be preserved, we have an admirable method of making even the rarest individuals available for future observation.

The same method will apply to the greater part of fungi and other

Cryptogams, and to a host of minute analyses of higher vegetables. It is inapplicable only where, as in Algæ, the tissues alter so much in drying as to retain few of their characters, and where the application of moisture does not make the tissues swell out to their original size. It is, however, possible that this method may be modified, so as to comprise even this important class of microscopic objects.—*Gardeners' Chronicle*, April 26, 1851.

NOTICE OF A SEA-BEACH DURING THE SILURIAN EPOCH.

One of the localities where fossils are obtained amongst the Silurians of the southern highlands of Scotland, is at the eastern side of the entrance into Kirkcudbright Bay. At this locality they occur in several spots, and the deposits which afford them vary considerably in appearance. Several beds of dark-coloured flags containing abundance of Graptolites of the species *ludensis* and *sagittarius*, amongst which the *Orthoceras annulatum* occurs, are to be met with. A light grey shale is also found, having imbedded within it nodules, some of which abound in fossils named in the 'Quarterly Journal of the Geological Society,' vol. iv. p. 206, and which appear to have been transported from other fossiliferous beds, rather than to be concretions of limestone gathered around organic bodies, inasmuch as the fossils themselves are generally either on the surface of the nodule or occur in a line slightly within its margin; and the nodules often bear evidence of friction and rolling. Besides these beds, there are seen near Reaberry Head deposits consisting of fine-grained greywacke sandstone with intercalated shales, or rather indurated clays, which appear to be of considerable extent, and which, from the sandstones and clays being of nearly equal thickness, and also from their regularly alternating, offer characters which are uncommon amongst the Scotch Silurians. One of these clay beds has imbedded within it irregular lines of coarse sand, and amongst this sand fragments of shells occur. These fragments consist of portions of *Terebratula lacunosa* and *T. semisulcata*, *Orthocerata*, and minute pieces of other shells, together with crinoidal rings. In some of the cells of the *Orthocerata* the fragments of the other shells are seen mixed with sand; and the broken shells themselves are of a white colour, very different from what Silurian fossils commonly present; and on the whole their appearance is not far removed from that of the broken bleached and withered shells of our own shores.

The greywacke sandstone also affords some information concerning the origin and circumstances attendant on the beds which are intercalated with it. On the under surfaces of some of these sandstones lines of desiccation occur, indicating that the clayey deposits had been exposed to the influence of solar heat; and the nature of the deposits themselves shows that the circumstances under which they originated were somewhat similar to those which prevail on some of our coasts at the present time. On the whole the appearance of these thin beds of greywacke sandstone and indurated clay is such as to show that in this locality, during a portion of the Silurian epoch, there existed a sea-shore, on the rippled surface of which grains of coarse sand and fragments of shells were strewed. And as we find at the present time,